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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,304	01/23/2002	Pascal Roncalez	120113.401	9761

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EXAMINER	
SOTOMAYOR, JOHN	

ART UNIT	PAPER NUMBER
3714	

DATE MAILED: 07/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/056,304	RONCALEZ ET AL.	
	Examiner	Art Unit	
	John L Sotomayor	3714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7,9-19,21,22,25,28,29,31 and 32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *31 and 32* is/are allowed.

6)☒ Claim(s) *1-5,7,9-19,21,22,25,28 and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/17/2004 has been entered.

Accordingly, claims 6,8,20,23-24,27 and 30 are cancelled and claims 1-5,7,9-19,21-22,25-26,28-29, 31 and 32 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3,17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Hutchings (US 6,305,221).

Regarding claim 1, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one

static acceleration signal, a processor coupled to the sensor assembly configured to determine at least a movement identification in response to the acceleration signal (Col 4). In the specification on page 1, line 18, applicant states that "accelerometers will always detect static and dynamic acceleration". In processing the signal from an accelerometer for static acceleration an apparatus would need to sample and process only the static acceleration signal, which is inherent in the signal output from any and all accelerometers used on a human form, to derive static acceleration. Hutchings further discloses determining information about repetitive movement of a swimmer's body by attaching a sensor assembly to the swimmer's body, generating said static acceleration signal while the swimmer is swimming, a processor coupled to the sensor assembly to determine stroke identification (Col 20, lines 26-48) and providing a signal for continuous display (Col 4, lines 7-18).

Regarding claim 2, Hutchings discloses a sensor assembly comprising at least a first and a second static acceleration sensor to be mounted to the swimmer's body and generating at least a first and a second static acceleration signal, a processor coupled to the sensor assembly configured to determine at least a movement identification in response to the first and second acceleration signals and a real-time, continuous display of a stroke pattern of a swimmer's body (Col 4 and Col 20, lines 26-48). In the specification on page 1, line 18, applicant states that "accelerometers will always detect static and dynamic acceleration". In processing the signal from an accelerometer for static acceleration an apparatus would need to sample and process only the static acceleration signal, which is inherent in the signal output from any and all accelerometers used on a human form, to derive static acceleration.

Regarding claim 3, Hutchings discloses a processor and display device configured to provide a new and improved three-dimensional tracking of extremities (Col 5, lines 62-65) including the stroke pattern for each arm of a swimmer (Col 20, lines 26-48).

Regarding claim 17, Hutchings discloses a sensor assembly configured to be mounted to the human body and configured to generate acceleration signals about a first axis parallel to the direction of travel and a second axis perpendicular to the first (fig 3), a processor configured to receive first and second signals and determine at least a movement type and a movement pattern (Col 4, lines 6-49), and a display device couple to the processor to display at least the stroke type and stroke pattern (Col 20, lines 26-48 and fig 16). In the specification on page 1, line 18, applicant states that "accelerometers will always detect static and dynamic acceleration". In processing the signal from an accelerometer for static acceleration an apparatus would need to sample and process only the static acceleration signal, which is inherent in the signal output from any and all accelerometers used on a human form, to derive static acceleration. Hutchings further discloses determining information about repetitive movement of a swimmer's body by attaching a sensor assembly to the swimmer's body, generating said static acceleration signal while the swimmer is swimming, a processor coupled to the sensor assembly to determine stroke identification (Col 20, lines 26-48) and providing a signal for display (Col 4, lines 7-18).

Regarding claim 18, Hutchings discloses a display device configured to display real-time, continuous information regarding stroke type and stroke pattern (Col 2, lines 60-67, Col 20, lines 26-48).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 4-5,9-10,19 and 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchings in view of Kaufman (US 6,251,048).

Regarding claim 4, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to a swimmer's body and generating at least one static acceleration signal. Hutchings does not specifically disclose an apparatus and method configured to display the breathing pattern of a swimmer's body. However, Kaufman teaches an exercise apparatus configured to monitor and display the breathing pattern of a person performing an exercise (Col 4, lines 58-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide an exercise apparatus configured to monitor and display the breathing pattern of a person performing an exercise. Combining the apparatus disclosed by Hutchings with the teaching of Kaufman produces an exercise system configured to allow a user to monitor a

number of biometric parameters during exercise, such as breathing pattern, to improve the exercise effectivity.

Regarding claims 5 and 21, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the swimmer's body and generating at least one static acceleration signal while swimming and comprising a processor (Col 20, lines 1-46). Hutchings does not specifically disclose an apparatus configured to display the breathing pattern (claims 5 and 21) of a swimmer's body or a swimmer's stroke pattern (claim 5). However, Kaufman teaches an exercise apparatus configured to monitor and display the breathing pattern of a person performing an exercise (Col 4, lines 58-67) and a swimmer's physical parameters (Col 6, lines 18-53). In the specification on page 1, line 18, applicant states that "accelerometers will always detect static and dynamic acceleration". In processing the signal from an accelerometer for static acceleration an apparatus would need to sample and process only the static acceleration signal, which is inherent in the signal output from any and all accelerometers used on a human form, to derive static acceleration. Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the swimmer's body and generating at least one static acceleration signal from a processor while swimming as disclosed by Hutchings with an exercise apparatus configured to monitor and display the breathing pattern and stroke pattern of a swimmer as taught by Kaufman for the purposes of producing an exercise system configured to allow a user to monitor a number of biometric parameters during exercise, including breathing and stroke patterns, to improve a swimmer's ability.

Regarding claim 9, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the swimmer's body and generating at least one static acceleration signal in a three axis space to detect the angle of a first axis parallel to the direction of travel and a perpendicular vertical axis to compute stroke parameters (Fig 3 and Col 20, lines 26-48).

Regarding claim 10, Hutchings discloses a device in which the first and second axes are positioned parallel to the surface of the earth (fig 1).

Regarding claim 19, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal to compute stroke parameters (Col 20, lines 26-48). Hutchings does not specifically disclose a device configured to generate audible sounds corresponding to at least movement type and movement pattern. However, Kaufman teaches a device with a sound generation circuit configured to generate audible sounds corresponding to physical activity of a plurality of exercises (Col 5, lines 1-19). Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal to compute stroke parameters as disclosed by Hutchings with an audible capability configured to generate audible sounds corresponding to at least movement type and movement pattern as taught by Kaufman for the purposes of producing an exercise system configured to provide audible check points and encouragement to assist a user in exercise improvement.

6. Claims 22, 25, 28 and 29, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchings in further view of Miley (US 5,921,890).

Regarding claim 22, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not disclose an exercise device with a processor configured to determine and display a swimmer's movements (claim 22). However, Miley teaches an exercise device with a processor configured to determine parameters associated with swimming (Col 2, lines 50-67). Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed by Hutchings with an exercise device with a processor configured to determine parameters associated with swimming, including stroke pattern, stroke count, stopping and reversing to turn as taught by Miley for the purposes of producing an exercise device that may be used to improve a swimmer's ability.

Regarding claim 25, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal comprising a processor configured to compute stroke parameters while swimming (Col 20, lines 1-46). Hutchings does not disclose an exercise device or method with a processor configured to determine and display a swimmer's stroke pattern including a kick pattern. However, Miley teaches an exercise device with a processor configured to determine parameters associated with swimming, including stroke pattern and stroke count (Col 2, lines 50-67). The kick is an inherent portion of the stroke, therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be

mounted to the human body and generating at least one static acceleration signal as disclosed comprising a processor configured to compute stroke parameters while swimming by Hutchings with an exercise device with a processor configured to determine parameters associated with swimming, including kick pattern and kick count as taught by Miley for the purposes of producing an exercise device that may be used to improve a swimmer's ability to control stroke movement.

Regarding claim 28, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not disclose an earpiece configured to convey audible sounds corresponding to at least the swimmer's stroke type and stroke pattern. However, Miley teaches transmitting audible sounds that may be transmitted to a swimmer through an earpiece (Col 3, line 41 to Col 4, line 6). Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal and transmitting audible sounds as disclosed by Hutchings with an exercise device with an earpiece configured to convey audible sounds corresponding to at least the swimmer's stroke type and stroke pattern as taught by Miley for the purposes of producing an exercise device that may be more easily worn and monitored by a swimmer.

Regarding claim 29, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal with a processor configured to determine and display a swimmer's movements including stroke pattern (Col 20, lines 6-67). Hutchings does not

specifically disclose particular segments of a stroke pattern such as periodicity or start and stop of stroke. However, Miley teaches an exercise device with a processor configured to determine stroke parameters associated with swimming (Col 2, lines 50-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal with a processor configured to determine and display a swimmer's movements including stroke pattern as disclosed by Hutchings with an exercise device with a processor configured to determine parameters associated with swimming, including stroke pattern, stroke count, stopping and reversing to turn as taught by Miley for the purposes of producing an exercise device that may be used to improve a swimmer's ability.

7. Claims 7, 11-16 and 26, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchings in view of Kaufman in further view of Miley.

Regarding claim 7, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal comprising a processor configured to compute stroke parameters while swimming (Col 20, lines 1-46). Hutchings/Kaufman does not disclose an exercise device or method with a processor configured to determine and display a swimmer's stroke pattern including a kick pattern. However, Miley teaches an exercise device with a processor configured to determine parameters associated with swimming, including stroke pattern and stroke count (Col 2, lines 50-67). The kick is an inherent portion of the stroke, therefore, it would have been obvious to one of ordinary skill in the art to

provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed comprising a processor configured to compute stroke parameters while swimming by Hutchings/Kaufman with an exercise device with a processor configured to determine parameters associated with swimming, including kick pattern and kick count as taught by Miley for the purposes of producing an exercise device that may be used to improve a swimmer's ability to control stroke movement.

Regarding claims 11 and 12, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal (claims 11) and the sensor assembly configured to generate static acceleration signals in response to tilting and rolling movements of the swimmer's body (claim 12) (Col 20, lines 49-67). Hutchings does not disclose nor does Kaufman teach an exercise device with a processor configured to determine and display segments of a swimmer's movements (claims 11) including stroke pattern (claims 12). However, Miley teaches an exercise device with a processor configured to determine parameters associated with swimming (Col 2, lines 50-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed by Hutchings/Kaufman with an exercise device with a processor configured to determine parameters associated with swimming, including stroke pattern, stroke count, stopping and reversing to turn as taught by Miley for the purposes of producing an exercise device that may be used to improve a swimmer's ability.

Regarding claims 13 and 14, Hutchings discloses an exercise device with a transmitting means with at least a bus for conveying data from the processor to the communication device (claim 13) and a transmitting means with a radio frequency transmitter for conveying data from the processor to the communication device (claim 14) (fig 16, Hutchings).

Regarding claims 15, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not disclose an earpiece configured to convey audible sounds corresponding to at least the swimmer's stroke type and stroke pattern. However, Kaufman teaches transmitting audible sounds (Abstract) and Miley discloses that these audible sounds may be transmitted to a swimmer through an earpiece (Col 3, line 41 to Col 4, line 6). Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal and transmitting audible sounds as disclosed by Hutchings/Kaufman with an exercise device with an earpiece configured to convey audible sounds corresponding to at least the swimmer's stroke type and stroke pattern as taught by Miley for the purposes of producing an exercise device that may be more easily worn and monitored by a swimmer.

Regarding claim 16, Hutchings discloses an exercise device with a transmitting means for conveying data from the sensor assembly to the processor (fig 16, Hutchings).

Regarding claim 26, Hutchings/Miley discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to a swimmer's body and generating at least one static acceleration signal. Hutchings/Miley does not specifically disclose an

apparatus and method configured to display the breathing pattern of a swimmer's body. However, Kaufman teaches an exercise apparatus configured to monitor and display the breathing pattern of a person performing an exercise (Col 4, lines 58-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide an exercise apparatus configured to monitor and display the breathing pattern of a person performing an exercise. Combining the apparatus disclosed by Hutchings/Miley with the teaching of Kaufman produces an exercise system configured to allow a user to monitor a number of biometric parameters during exercise, such as breathing pattern, to improve the exercise effectivity.

Allowable Subject Matter

Claims 31 and 32 are allowed. The prior art does not teach or suggest attaching a plurality of sensor assemblies to a swimmer's body, or two sensors attached to a swimmer's back, to detect rolling motion relative to a longitudinal axis of a swimmer's body in parallel to the direction of travel, to detect tilting motion relative to an axis parallel to the longitudinal axis of travel, using a processor to compute a swimmer's stroke type and stroke pattern based upon the collected data, and to provide a real-time, continuous display of said stroke information during a swimming activity in combination with the other limitations of claim 31.

The prior art does not teach or suggest attaching two sensors to a swimmer's back one configured to track movement in an axis parallel to the direction of the swimmer's travel and the other to track movement in an axis perpendicular to the axis tracked by the first sensor in combination with the other limitations of claim 32.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L Sotomayor whose telephone number is 703-305-4558. The examiner can normally be reached on 6:30-4:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached on 703-308-1745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jls
July 9, 2004

JESSICA HARRISON
PRIMARY EXAMINER